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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,914	11/13/2003	Gee-Sung Chae	8733.894.00-US	7320
30827	7590	10/04/2007		
MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			EXAMINER NGUYEN, LAUREN	
			ART UNIT 2871	PAPER NUMBER
			MAIL DATE 10/04/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/705,914

Applicant(s)

CHAE ET AL.

Examiner

Lauren Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 and 17-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/27/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. The election of species requirement between species A1 and A2, as set forth in the Office action mailed on 08/27/2007, has been reconsidered. It is hereby withdrawn.

In view of the above noted withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

2. Applicant's election of Group II invention (including claims 9-16) in the reply filed on 09/27/2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted was filed on the mailing date of the instant application on 08/27/2007. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Objections

5. **Claim 12** is objected to because of the following informalities: "the signal line includes a gate line and a data line" is unclear. The signal line should include only one of the gate or the data lines. For examining purposes, it should be corrected to "The signal line includes a gate line or a data line". Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 9-16** rejected under 35 U.S.C. 103(a) as being unpatentable over **Sung et al.** (US 6,432,755) in view of **Ishikura et al.** (US 6,219,125).

6. With respect to **claim 9**, **Sung et al.** (figures 4 and 7A-9E) discloses a manufacturing method of an array substrate for a liquid crystal display device, comprising: forming a signal line (source wiring or the gate line connected to the gate electrode 3, see at least column 6, lines 51-63); forming a thin film transistor (1) having the signal line; and forming a pixel electrode (12) connected to the thin film transistor.

Sung et al. discloses the limitations as shown in the rejection of **claim 9** above. However, **Sung et al.** fails to teach the remaining limitations of **claim 9**. **Ishikura et al.** (figures 4 and 7A-9E) teaches forming a copper compound layer (11) on a substrate; forming a copper layer (12) on the copper compound layer; forming a signal line by etching the copper compound layer and the copper layer (see at least column 6, lines 46-

50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the signal line of **Sung et al.** with the technique of **Ishikura et al.** because such modification would provide a signal line capable of improving adhesive properties between metal electrodes and a substrate and capable of providing a stable electrical conduction of the metal electrodes (see at least columns 1 and 2, lines 64-68 and 1-5, respectively).

7. With respect to **claim 10**, **Ishikura et al.** (figures 4 and 7A-9E) discloses the copper compound layer (11) is formed in a processing chamber where a gas flows that chemically combines with the copper (see at least column 8, lines 10-15).

8. With respect to **claim 11**, **Ishikura et al.** (figures 4 and 7A-9E) discloses the gas is N.sub.2 (see at least column 8, lines 10-15).

9. With respect to **claim 12**, **Sung et al.** (figures 4 and 7A-9E) discloses the signal line includes a gate line or a data line (source wiring or the gate line connected to the gate electrode 3, see at least column 6, lines 51-63).

10. With respect to **claim 13**, **Ishikura et al.** (figures 4 and 7A-9E) discloses the copper layer (12) is formed in a processing chamber where a gas flows that does not chemically combine with the copper (see at least column 8, lines 16-20).

11. With respect to **claim 14**, **Ishikura et al.** (figures 4 and 7A-9E) discloses the gas is Ar (see at least column 8, lines 16-20).

12. With respect to **claim 15**, **Ishikura et al.** (figures 4 and 7A-9E) discloses forming a gate electrode by etching the copper compound layer and the copper layer (see at least column 6, lines 46-50).

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13. With respect to **claim 16, Sung et al.** (figures 4 and 7A-9E) discloses forming the thin film transistor (1) includes: forming an active layer (57); forming an ohmic contact layer (58); forming a copper compound layer on the ohmic contact layer.

Sung et al. discloses the limitations as shown in the rejection of **claim 15** above. However, **Sung et al.** fails to teach the remaining limitations of **claim 15**. **Ishikura et al.** (figures 4 and 7A-9E) teaches forming a copper layer on the copper compound layer (11) and forming a drain electrode and a source electrode (8 and 7) by etching the copper compound layer and the copper layer (see at least column 6, lines 46-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the signal line of **Sung et al.** with the technique of **Ishikura et al.** because such modification would provide a signal line capable of improving adhesive properties between metal electrodes and a substrate and capable of providing a stable electrical conduction of the metal electrodes (see at least columns 1 and 2, lines 64-68 and 1-5, respectively).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lauren Nguyen whose telephone number is (571) 270-1428. The examiner can normally be reached on M-F, 7:30-5:00 EST.

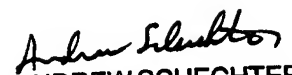
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lauren Nguyen

September 14, 2007


ANDREW SCHECHTER
PRIMARY EXAMINER